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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/533,910	05/05/2005	Masakazu Koizumi	24.023.TN	9732
23400 7590 04/06/2009 POSZ LAW GROUP, PLC 12040 SOUTH LAKES DRIVE SUITE 101 RESTON, VA 20191				
EXAMINER GODENSCHWAGER, PETER T				
ART UNIT 1796		PAPER NUMBER		
MAIL DATE 04/06/2009		DELIVERY MODE PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/533,910

**Applicant(s)**

KOIZUMI ET AL.

**Examiner**

PETER F. GODENSCHWAGER

**Art Unit**

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 January 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 5,8 and 11-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 5,8 and 11-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-8508)
- \_\_\_\_\_ Paper No(s)/Mail Date \_\_\_\_\_

- 4) ☐ Interview Summary (PTO-413)
- \_\_\_\_\_ Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on January 27, 2009 has been entered.

Applicant's reply filed January 27, 2009 has been fully considered. Claims 5, 8, and 11 are amended, claims, 1-4, 6, 7, 9, and 10 are canceled, and claims 5, 8, and 11-14 are pending.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 5 and 8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 5 and 8, the definitions of R<sup>1</sup>, R<sup>2</sup>, and R<sup>3</sup> are included in a parenthetical statement. Therefore, it is not clear whether these limitations are intended to be required as part

of the claim. For purposes of further examination, the limitations to R<sup>1</sup>, R<sup>2</sup>, and R<sup>3</sup> in claims 5 and 8 are being interpreted as being required limitations of the claims.

***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shimura et al. (JP Pub. No. 2002-129366A, English translation relied upon) in view of Vercammen (US Pat. No. 7,279,089).

Shimura et al. teaches a method of adding an amine to water going to a boiler (feed water for a steam generating unit) ([0005], [0008] of English translation). Shimura et al. further teaches that the pH should be kept at 9.5 or greater (overlapping the range of 8.5-9.5) ([0010] of English translation), and that the amine is added in a mixture of water and amine before adding to the boiler (water to be feed into the boiler/feed water) ([0008] of English translation).

Shimura et al. does not teach that the amine is an amine of general formula (1) of claim 5. However, Vercammen teaches the use of choline, a compound of general formula (1) where R<sup>1</sup>, R<sup>2</sup>, and R<sup>3</sup> are methyl groups (hydrocarbon radicals with 1 carbon atom) and n=2, as a corrosion inhibitor for metals (1:9-23 and 2:63-3:10). Neither Shimura et al. nor Vercammen explicitly teaches using the amine/choline at 0.4-4 mg/L of feed water. However, such a teaching is implicit in the combined teaches as Shimura et al. teaches that the pH should be kept at 9.5 or greater (overlapping the claimed range of 8.5-9.5), the concentration of choline necessary to

achieve such a pH would be dictated by such a teaching. Shimura et al. and Vercammen are analogous art because they are concerned with solving a problem of similar technical difficulty, namely the prevention of corrosion of metal surfaces by the quenching of corrosive acids with amines. At the time of the invention, a person of ordinary skill in the art would have found it obvious to use the choline of Vercammen with the method of Shimura et al. and would have been motivated to do so because Vercammen teaches that while other amines form a sticky solid when quenching acids, choline (the additive) does not (3:25-31).

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Braden et al. (US Pat. No. 5,965,785) in view of Vercammen (US Pat. No. 7,279,089).

Braden et al. teaches a process of adding amines to a liquid that comes in contact with an atmospheric pipestill tower (atmospheric distillation column) in an amount to keep the bulk water condensate (which condenses at the top of the distillation column) at a pH of 5.5-6.5 (1:14-24, 3:17-25, and 5:3-12).

Braden et al. does not teach the method where a compound of formula (1) is added in place of the amines (i.e. only a compound of formula (1) is added). However, Vercammen teaches the use of choline, a compound of general formula (1) where  $R^1$ ,  $R^2$ , and  $R^3$  are methyl groups (hydrocarbon radicals with 1 carbon atom) and  $n=2$ , as a corrosion inhibitor for metals in oil refinery systems (1:9-23 and 2:63-3:10). Braden et al. and Vercammen are analogous art because they are concerned with the same field of endeavor, namely the prevention of corrosion in oil refinery process through the addition of amines. At the time of the invention, a person of ordinary skill in the art would have found it obvious to use the choline of

Vercammen to replace the amines in the method of Braden et al. and would have been motivated to do so because Vercammen teaches that while other amines form a sticky solid when quenching acids, choline (the additive) does not (3:25-31).

Claims 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Braden et al. (US Pat. No. 5,965,785) in view of Vercammen (US Pat. No. 7,279,089).

Regarding Claim 11: Braden et al. teaches a process of adding amines to a liquid that comes in contact with an atmospheric pipestill tower (atmospheric distillation column) where the amine may be added to the crude oil coming into the tower (which is after the desalter, see Fig. 1) (Fig. 1, 1:14-24, 4:66-5:12).

Braden et al. does not teach the method where ( $\beta$ -hydroxyethyl) trimethylammonium hydroxide is added in place of the amines (i.e. only ( $\beta$ -hydroxyethyl) trimethylammonium hydroxide is added). However, Vercammen teaches the use of choline (( $\beta$ -hydroxyethyl) trimethylammonium hydroxide), as a corrosion inhibitor for metals in oil refinery systems (1:9-23 and 2:63-3:10). Braden et al. and Vercammen are analogous art because they are concerned with the same field of endeavor, namely the prevention of corrosion in oil refinery process through the addition of amines. At the time of the invention, a person of ordinary skill in the art would have found it obvious to use the choline of Vercammen to replace the amines in the method of Braden et al. and would have been motivated to do so because Vercammen teaches that while other amines form a sticky solid when quenching acids, choline (the additive) does not (3:25-31).

Regarding Claim 12: Braden et al. does not teach the method where the amine is kept at 0.1-5 times the amount of salt content in the oil. However, it is common practice in the art to optimize result effective variables such as relative concentration of amine to salt in the crude oil distilling process (See MPEP 2144.05). At the time of the invention, a person of ordinary skill in the art would have found it obvious to optimize the relative amount of amine to salt in the crude oil distillation process and would be motivated to do so because, as Braden et al. teaches, the salt is directly responsible for producing the corrosive acid in the process (2:21-26). Therefore, based on the level of corrosion resistance required, one would want to adjust the acid quenching compound (amine) accordingly.

Regarding Claims 13 and 14: Braden et al. further teach measuring the pH of the condensate (condensed water) and adjusting the amount of amine accordingly (6:43-58). Braden et al. specify a pH range for the water condensate of the overhead accumulator of 5-6.5 as being corrosion safe (6:53-58).

### ***Response to Arguments***

Applicant's arguments filed January 27, 2009 have been fully considered but they are not persuasive.

Applicant's arguments regarding the amendment to claim 5 and the amount of corrosion inhibitor added have been addressed in the rejection above.

Applicant's arguments regarding the amendments to claims 8 and 11 reciting that only the compound of formula (1) / ( $\beta$ -hydroxyethyl) trimethylammonium hydroxide is added has been addressed in the rejections above. As the teachings of Vercammen suggest using choline

(( $\beta$ -hydroxyethyl) trimethylammonium hydroxide) in place of amines, one would be motivated to replace entirely the amines of Braden et al. with the single compound of Vercammen.

Applicant argues that Braden et al. teaches that blends of amines may be custom matched to the system and therefore teaches away from using a single compound. However, the general teaching of Vercammen that choline (( $\beta$ -hydroxyethyl) trimethylammonium hydroxide) be used in place of amines in order to avoid forming a sticky solid when quenching acids would be enough to suggest to one of ordinary skill in the art to do so.

### *Correspondence*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PETER F. GODENSCHWAGER whose telephone number is (571)270-3302. The examiner can normally be reached on Monday-Friday 7:30-5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on (571) 272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/P. F. G./  
Examiner, Art Unit 1796  
March 31, 2009

/Harold Y Pyon/  
Supervisory Patent Examiner, Art Unit  
1796